

## ABSTRACT

A switch/router contains intelligence for more quickly determining a next hop for an network layer packet. A network forwarding lookup table or array structure is  
5 configured so as to minimize the number of memory accesses required. This results in a decrease in time due to memory access and a decrease in computational overhead due to the memory accesses. In one embodiment, a first forwarding lookup is indexed by the first 16 bits of a destination address. A second forwarding lookup is indexed by the subsequent 8 bits of the destination address, and a final third forwarding lookup is  
10 indexed by the last 8 bits of the destination address. Each entry within a forwarding lookup contains either direction as to how properly forward the packet or reference to a next subsequent forwarding lookup.

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